

10/17/13

### Agenda

- Opener
- Review Homework 2.6  
p. 119-121 (10-32 evens, 46)
- Section 2.7 - Proportions
- Homework
  - HW 2.7 - p. 127-129 (18-44 evens, 60, 62)

QUIZ TOMORROW!  
12-15 QUESTIONS

Homework out!

Warmup:

**Customary Units and Metric Units**

1 in. = 2.54 cm

1 mi  $\approx$  1.61 km

1 ft  $\approx$  0.305 m

Convert 4 feet to meters.

$$\frac{4\cancel{\text{ft}}}{1} \times \frac{.305\text{m}}{1\cancel{\text{ft.}}} = 1.22\text{ m}$$

$$\frac{4}{3} \cdot \frac{2}{1}$$

# Section 2.7 - Proportions

# Target 2E

Goal: Solve and apply proportions.

Proportion: An equation that states that two ratios are equal.

Ex:  $\frac{1}{2} = \frac{5}{10}$        $\frac{x}{8} = \frac{3}{6}$        $\frac{a}{b} = \frac{c}{d}$

We would read the last proportion,  $\frac{a}{b} = \frac{c}{d}$ , as "a is to b as c is to d"

How to solve for a missing value:

Use the Cross Product Method.  
(diag.) (mult.)

The cross product property states that if

$$\frac{a}{b} = \frac{c}{d}$$

then  $ad = bc$

Don't forget to check your answer!

$$\frac{3}{4} = \frac{-6}{-8}$$

$$\frac{3}{4} = \frac{3}{4}$$

$$\frac{3}{4} = \frac{-6}{m}$$

$$3m = 4 \cdot -6$$

$$3m = \frac{-24}{3}$$

$$m = -8$$

$$\frac{x}{8} = \frac{3}{6}$$

$$6x = 3 \cdot 8$$

$$\frac{6x}{6} = \frac{24}{6}$$

$$x = 4$$

$$\frac{4}{8} = \frac{3}{6}$$

$$\frac{1}{2} = \frac{1}{2} \checkmark$$

You try:

$$\frac{3}{4} = \frac{18}{24}$$

~~$$\frac{x}{4} = \frac{18}{24}$$~~

$$x=3 \quad 24x = 4 \cdot 18$$

$$\frac{24x}{24} = \frac{72}{24}$$

$$x=3$$

~~$$\frac{5}{2} = \frac{60}{x}$$~~

$$x=24$$

$$5x = 60 \cdot 2$$

$$\frac{5x}{5} = \frac{120}{5}$$

$$x=24$$

Level 2  
Proportions:

~~$$\frac{(a-2)}{9} = \frac{2}{3}$$~~

$$\frac{(8-2)}{9} = \frac{2}{3}$$

$$\frac{6}{9} = \frac{2}{3}$$

$$\frac{2}{3} = \frac{2}{3}$$

$$3 \cdot (a-2) = 9 \cdot 2$$

$$3a - 6 = 18$$

$$\begin{array}{r} +6 \\ \hline 3a = 24 \end{array}$$

$$\frac{3a}{3} = \frac{24}{3}$$

$$a=8$$

~~$$\frac{(x+1)}{(x-2)} = \frac{4}{7}$$~~

$$7(x+1) = 4(x-2)$$

$$7x + 7 = 4x - 8$$

$$\begin{array}{r} -4x \\ \hline 3x + 7 = -8 \end{array}$$

$$\begin{array}{r} -7 \\ \hline 3x = -15 \end{array}$$

$$\frac{3x}{3} = \frac{-15}{3}$$

$$x = -5$$

Real world applications:

If 3 pizzas serve 12 people, how many pizzas are needed for a party of 68 people?

PIZZAS  
PEOPLE

$$\frac{3}{12} = \frac{x}{68}$$

$$12x = 3 \cdot 68$$

$$\frac{12x}{12} = \frac{204}{12}$$

$$x = 17$$

A portable media player has 2 gigabytes of storage and can hold about 500 songs. If you buy a newer player with 80 gigabytes of storage, about how many songs can it hold?